November 10, 1949.

Dr. M. Demerec,
Dept. Genetics,
Carnegie Institution,
Cold Spring Harbor, L.I., N.Y.

Dear Demerec:

I am glad to hear that you are continuing genetic studies on streptomycin-resistance in K-12. I wish you luck in attempts to cross K-12 with B, but judging from my own experiences, I could not be too hopeful.

The mapping of sr [which I propose should be designated as the St locus, with alleles s, d, and r, i.e. St^r, St^s, St^d....] proved to be very difficult, in Newcombe's experience as well as our own. Doudoroff here, this summer, tried to obtain diploids heterozygous at St, but failed, as all the Lac+/Lac- diploids recovered were pure, presumably hemizygous St^r. Since the Mal locus has behaved in the same way, crosses were done to check on the linkage of St to Mal, and a fairly close linkage was found. As I mentioned at Shelter Island, there appears to be a group of loci, which now includes Mal, Gal and St, which occupy a segment of chromosome which is regularly eliminated, sometimes from one parent, rarely from the other, so that the "diploids" are monogenic for these factors. Thus, these factors have not been mappable on the standard linkage diagram. I am sending W-1177 for your interest in confirming these findings. This stock is derived from W-677, and ultimately from Y-10, and carries:

$$T\text{-}L\text{-}B_1\text{-}\ V_1^r\ Lac\text{-}\ Mal\text{-}\ Gal\text{-}[slow]\ Ara\ [slow]\ Xyl\text{-}\ Mtl\text{-}\ St^r$$

I am also sending Y-40, as requested.

I have not found any additional factors located in the V_1-TL region.

Your discovery of another sr mutation [can we agree to call this St_2^r] is of great interest. If your location is correct, it should be possible to obtain diploids which are heterozygous at St_2, to test dominance. If you would care to, I would appreciate your sending it, for just this purpose. So far, resistance to T1, and to azide, seem to be recessive. I have just checked that Az^r x St^r can be used in selecting recombinants by plating with both agents, without too much confusion from spontaneous mutation. MS is in press.

Sincerely yours,

Joshua Lederberg